

HowTo Document

Lab1:

- Downloaded CoolTerm for Mac
 - Must connect to proper port and clear the data afterwards to use
- Imported files into my local desktop using git on terminal
 - Git clone, git pull, etc.
- Set CCS workspace to the workspace within the local SE423 folder on desktop

Lab2:

- Adding variables to watchlist by right clicking on the variable and selecting add to watch list
 - Allows easy access to variable's value overtime
- Add breakpoints to code by clicking on the left of the code on the gray bar
 - Stops code at the break points to check for errors

Lab3:

- Learned how to set up registers to control various variables
- Learned how to use the pinmux tables to change between GPIO and EPWM registers
- Set up equations to control duty cycles for the servo and RC motors

Lab4:

- Learned how to set up interrupts for different channels
- Learned how to use tables to figure out the group and numbers for specific interrupts
- Learned how to scope frequencies using the signal generators
- Created different filters in matlab and tested them on the segbot.

Lab5:

- Learned how to set up SpibRegs
- Soldered the DAN28027 board so that we could communicate with it during lab
- Communicated with MPU9250 to print accelerometer and gyro readings

Lab6:

- Learned how to control the robot speed and make it steer left or right
 - Using different gains can either make the robot respond quickly to a change in velocity (negative or positive) or very slowly
 - Use the serialRXA function to change speeds, steer left and right, and stop
- Kept track of the robot pose and angle as the robot is steered around the class
 - Use the trapezoidal rule to integrate $x_{\dot{}}$ and $y_{\dot{}}$ to obtain the x and y poses

Lab7:

- Learned how to initialize the segbot to balance
 - Must wait 4 seconds for the gyro value/tilt value to reach resting position and then put the segbot on its wheels
- Integrated various values to be used when steering the robot
 - Used the trapezoidal rule to integrate over 4 ms
- Steered the robot and saw that there was an offset which made it move a bit
- Played around with gains and saw that lower gains would make it oscillate a bit when turning